

U.S. Patent Application Serial No. 10/660,745
Amendment filed March 3, 2006
Reply to OA dated October 7, 2005

REMARKS

Claims 1-15 are pending in this application. Claim 3 is canceled without prejudice or disclaimer, and claims 1, 4-9, 12 and 14-15 are amended herein. Upon entry of this amendment, claims 1, 2 and 4-15 will be pending. Entry of this amendment and reconsideration of the rejections are respectfully requested.

Minor amendments are also made to the specification. Support for the specification amendments is discussed below.

No new matter has been introduced by this Amendment.

Claims 1, 5 and 7 have been amended to recite "wherein said polymer dispersant has functional groups absorbed on the fine hexaboride particles to serve as anchors, as well as polymer backbone chains having an affinity for an organic solvent or thermoplastic resin". Support for this amendment may be found, for example, on page 15, lines 17-23, of the specification.

Claims 1, 5 and 7 have also been amended to incorporate the limitation on the polymer dispersant, recited in original claim 3. Claim 3 has been canceled without prejudice or disclaimer, and the dependencies from claim 3 in the other claims have been deleted.

In addition, claim 6 has been amended to depend from claim 5. This is a correction of a typographical error, as claim 6 is a process claim, and should depend from the process of claim 5.

Support for the other amendments to the claims is discussed below.

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Claims 1-15 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (Office action paragraph no. 2)

The rejection is overcome by the amendments to the claims.

With regard to the Examiner's remarks concerning alternative recitation, claims 1, 4, 5, 7, 14 and 15 have been amended to use standard Markush terminology.

The word "type" has been deleted from the phrase "polymer type dispersant" in claims 1, 5 and 7, and also from the occurrence in "polyacrylate type dispersant", etc., in the recitation of claim 3 added to claims 1, 5 and 7.

Claim 1 has been amended to delete the word "substantially".

In claims 8 and 9, the phrase "its heat radiation shielding component" has been replaced with --the polymer dispersant--, for clarity. Applicant has also correspondingly amended the specification on page 9, lines 5-6, page 24, line 25, to page 25, line 1, and on page 27, lines 15-16. Support for this amendment is as follows:

In claim 1, the "hexaboride" is recited to be a "heat radiation shielding component". On page 24, line 22, to page 25, line 7, the original specification discloses "adding the heat radiation shielding component dispersion to the organic solvent to dissolve its heat radiation shielding component and disperse the fine hexaboride particles uniformly in an organic solvent ..." That is, the hexaboride particles are dispersed, not dissolved, and the component that is dissolved is clearly

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the “polymer type dispersant”, as disclosed on page 25, lines 3-6 (and on page 18, lines 3-6). The present amendment is made to remove the confusing wording from the specification and claims.

Claims 1-3 and 7-15 are rejected under 35 U.S.C. §102(a) or (e) as being anticipated by Fisher (US 6,620,872), printed as US 2002/0086926A1). (Office action paragraph no. 4)

Reconsideration of the rejection is respectfully requested in view of the amendments to the claims. As noted above, claims 1 and 7 have been amended to recite: "wherein said polymer dispersant has functional groups absorbed on the fine hexaboride particles to serve as anchors, as well as polymer backbone chains having an affinity for an organic solvent or thermoplastic resin"

Fisher discloses, in its abstract, “an IR absorbing polyvinyl butyral composition containing an IR absorbing effective amount of lanthanum hexaboride”, and “an IR absorbing polyvinyl butyral sheet having a sheet-like IR absorbing polyvinyl butyral composition disposed between two sheets of glass”.

However, nowhere does Fisher teach or suggest, in the above-noted IR absorbing polyvinyl butyral composition and IR absorbing polyvinyl butyral sheet, the use of a polymer dispersant which has functional groups absorbed on the fine hexaboride particles to serve as anchors, as well as polymer backbone chains having an affinity for an organic solvent or thermoplastic resin, and is selected from a polyacrylate dispersant, a polyurethane dispersant, a polyether dispersant, a polyester dispersant and a polyester-urethane dispersant.

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Fisher merely discloses, as heat radiation shielding products, an IR absorbing polyvinyl butyral composition and an IR absorbing polyvinyl butyral sheet. In Fisher's Example 1, an IR absorbing polyvinyl butyral sheet is produced, as a heat radiation shielding product, by the use of a conventional dispersion in which fine particles of lanthanum hexaboride have been **directly dispersed in an organic solvent (toluene)**. (See column 4, lines 62-63, of Fisher).

Polyvinyl butyral resin does not meet the limitations of the polymer dispersant in claim 1 or 7.

Claims 1, 2, and 7-15, as amended, are therefore not anticipated by Fisher.

Claims 1-5 and 7-15 are rejected under 35 U.S.C. §102(b) as being anticipated by Takeda et al. (US 6,319,613). (Office action paragraph no. 5)

Reconsideration of the rejection is respectfully requested in view of the amendments to the claims.

Applicant notes that Takeda et al. corresponds to Japanese Patent Laid-Open No. 2000-169765. Applicant notes that this document is discussed on page 6, line 3 of the specification.

Takeda et al. '613 merely describes a coating solution for forming a solar radiation cutoff film which contains fine particles of a hexaboride and ITO or ATO in a certain weight ratio (see claim 1 of Takeda et al.), a coating solution according to claim 1 which includes a binder selected from ultraviolet-curing resin, electron beam-curing resin, cold-curing resin and thermoplastic resin (see claim 3 of Takeda et al.), and a film used to cut off solar radiation which is formed by coating one

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side of a base with a coating solution for forming a solar radiation cutoff film (see claim 5 of Takeda et al.)

There is no teaching or suggestion in Takeda et al. for use of a polymer dispersant that has functional groups absorbed on the fine hexaboride particles to serve as anchors, as well as polymer backbone chains having an affinity for an organic solvent or thermoplastic resin, and is selected from a polyacrylate dispersant, a polyurethane dispersant, a polyether dispersant, a polyester dispersant and a polyester-urethane dispersant, as recited in amended claims 1, 5 and 7. Claims 1, 2, 4, 5 and 7-15 are therefore not anticipated by Takeda et al.

Claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fisher et al.

(Office action paragraph no. 7)

Reconsideration of the rejections is respectfully requested in view of the amendment to claim 1. As noted above, claim 1 has been amended to recite: "wherein said polymer dispersant has functional groups absorbed on the fine hexaboride particles to serve as anchors, as well as polymer backbone chains having an affinity for an organic solvent or thermoplastic resin, and is at least one selected from the group consisting of a polyacrylate dispersant, a polyurethane dispersant, a polyether dispersant, a polyester dispersant and a polyester-urethane dispersant", and Applicant has noted that there is no teaching or suggestion in Fisher et al. for this limitation. Claim 4 is therefore not obvious over Fisher et al.

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Claim 6 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fisher or Takeda et al. (Office action paragraph no. 8)

Reconsideration of the rejections is respectfully requested in view of the amendment to claims 5 and 6. As noted above, claim 5 has been amended to recite: "wherein said polymer dispersant has functional groups absorbed on the fine hexaboride particles to serve as anchors, as well as polymer backbone chains having an affinity for an organic solvent or thermoplastic resin, and is at least one selected from the group consisting of a polyacrylate dispersant, a polyurethane dispersant, a polyether dispersant, a polyester dispersant and a polyester-urethane dispersant", and Applicant has noted that there is no teaching or suggestion in Takeda et al. or in Fisher for this limitation.

Claim 6, which has been amended to depend from claim 5, is therefore not obvious over Takeda et al. and Fisher, taken singly or in combination.

Claims 1-4 and 7-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of copending Application No. 10/480,940. (Office action paragraph no. 10)

The rejection is obviated by the filing of a terminal disclaimer over USSN 10/480,940. The terminal disclaimer papers are filed concurrently with this Amendment.

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In view of the aforementioned amendments and accompanying remarks, the claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosures: Petition for Extension of Time
Terminal Disclaimer over USSN 10/480,940